THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF TRANSPORTATION

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August 14, 2008

Bernard Cohen, Chairman
Massachusetts Turnpike Authority
State Transportation Building
Boston, MA 02116

Dear Mr. Chairman:.

I am pleased to present to you the final close-out report and supporting documents on the Metropolitan Highway System "Stem to Stern" Safety Review. As you recall, the safety audit was conducted pursuant to Executive Order No. 474 (August 2006) and under the authority of Chapter 153 of the Acts of 2006. The final report comprises Phase II of the Stem to Stern effort. Phase I was delivered in November of 2006.

The charge of the Safety Review Team was to conduct an independent and comprehensive safety review of the Metropolitan Highway System (MHS) providing an assessment of facilities comprising the Central Artery/Tunnel System as well as the Callahan and Sumner tunnels and the structures on and over Interstate 90 from downtown Boston to Route 128. By submission of the final report, I am convinced that the objective was met to the fullest intent of the Order and the Act.

Throughout this unprecedented study of the MHS infrastructure, the relentless efforts of the Safety Review Team with federal oversight offered by representatives of the Federal Highway Administration and the DOT Inspector General, and most notably the Special Safety Review Advisory Panel (comprised of nationally recognized academic, operational, and research institutions), have studied, analyzed, deliberated and made recommendations as to the cause of observed deficiencies and evaluated the safety risk in order to assign a relative priority for repair. In addition, they evaluated a myriad of solutions to offer what are concluded to be the best options for repair to ensure the safety and longevity of the infrastructure serving such a vital role in the prosperity of the Commonwealth.

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As the primary engineering consultant conducting the review, Wiss, Janney, Elstner Associates, Inc. has been consistently meticulous in the forensic study of noted deficiencies, managing well the normal administrative requirements associated with the physical access onto an operating turnpike and highway system. The methodology invoked for this review included hands-on inspections, design reviews, engineering calculations, and lab testing and analyses. The findings then were evaluated by the Safety Review Team, Federal agencies, and the Special Advisory Panel, applying a broader perspective and insight into the issues at hand. As a result, the process ensured that the highest level of review and cross-checks were provided, giving further confidence that this was an exhaustive study.

This final report concludes almost two years of study and analysis, reviewing the condition and functionality of over 16 miles of submerged tunnels, 11 miles of interstate highways, and over 7,500 structural components and appurtenances, whose ownership crosses several different jurisdictions. Overall, 378 safety concerns were documented for follow-up actions, ranging from the relatively simple incorrectly mounted sign base to the very complicated stress cracks exhibited in a concrete viaduct. These are described in detail and reported out in 24 volumes.

Throughout the review's progress, the condition and urgency of noted deficiency repairs were prioritized and communicated directly to the MTA and third party owners, as applicable. Likewise, I have forwarded the final report to the MTA staff for it use, reference and follow-up action.

Coincident with Phase II of this safety review, it should be noted that three significant events outside of the review have transpired which will have a continuing impact on the future safety and repair of the Central Artery/ Tunnel (CA/T):

1. October 2007 The National Transportation Safety Board and the Federal Highway Administration issued a nationwide advisory restricting the use of epoxy anchorage systems on new and existing construction projects.

2. January 2008 The MTA gains full responsibility for the operations of the completed CA/T, while the Integrated Project Organization with all associated contracts, was divested. Final close out activities at the CA/T continue under the direction of the MTA.

3. January 2008 The CA/T Repair and Maintenance Trust Fund was established for the repair of CA/T infrastructure due to deficiencies that are deemed not normal wear and tear.

As the safety review under the Order comes to a close, the combination of issues documented in the reports and my observations during the review, has led me to make the following recommendations:

1. ***Oversight through the Secretary of Transportation should continue on an ongoing basis until the reported conditions are resolved.*** While significant progress has been made on remediating reportable conditions, there are 143 conditions which remain open, yet to be repaired by the MTA. Independent monitoring can assist in keeping repair progress visible, and on an agreed upon timeline. As several large repairs are complex in nature and have the interest of the Federal Highway Administration and other stakeholders remain to be completed, this oversight can provide that linkage.

2. ***Conduct peer review for the design and installation of repairs for specific complex issues.*** The CA/T is a unique and extremely complex with an unprecedented integration of systems. Some of the recommended repairs affecting the long term viability and safety of the tunnels will need to solve interrelated problems. As experienced during this audit, independent reviews can benefit the solution.

3. ***Establish detailed criteria and conduct an aggressive inspection timetable for structures experiencing deferred maintenance.*** In Phase II, the hands-on inspections detailed some 66 "Immediate Concern" (IC) deficiencies (designated IC because of their potential to inflict harm to motorists without warning). However upon conducting the "verification inspection" six months later to ensure that corrections were made, additional IC conditions were noted, illustrating the rapidity that the older structures can develop these conditions which can quickly compromise the public's safety.

4. ***Develop a funding plan, to include the CA/T Repair and Maintenance Trust Fund, to provide the necessary resources to properly maintain the MHS.*** Significant resources have been made available through the CA/T Maintenance Trust Fund. It is important to maintain the structural integrity of the CA/T by remediating construction flaws in a timely manner to preclude the development of secondary, and sometimes more significant, deterioration.

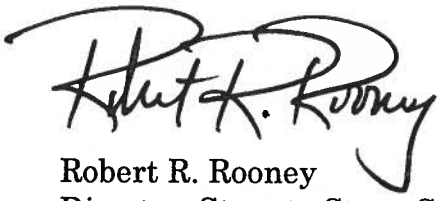
   Maintenance on the older MHS infrastructure is often deferred due to lack of funds. The documented deterioration on older structures in the MHS should not be allowed to become the template for maintaining the CA/T. The complexity and critical function that the CA/T serves for the Commonwealth necessitates an expectation that it will be maintained to last indefinitely. To do otherwise will result in

future safety concerns well before the maturity of its critical components, in addition to increased costs and congestion associated with the repair of deferred maintenance.

5. ***Formalize agreements between the MTA and third party owners to allow for expedited mitigation of immediate safety concerns on structures.*** There are about a dozen private entities and state agencies who own structures on, over, or below the MHS. Not only are the jurisdictional boundaries unclear, but staff contacts with the various owners change and priorities are not always consistent. Thus, despite efforts to communicate safety concerns to appropriate parties for action, they can get delayed or worse, lost, in the bureaucracy while potentially exposing the public to immediate dangers. Having these agreements in place would mitigate third party risks.

In closing, I believe through this review the Commonwealth has completed a responsible step toward defining the degree of safety of the MHS today, and for the future. This will ultimately restore the confidence of her citizens who utilize these facilities every day and depend on the transportation agencies to ensure their integrity. I have enjoyed working with many committed and competent engineers and managers on this intensive project, many of them in the Turnpike. The Safety Review Team is available at your convenience to answer any questions you may have on the final report.

Sincerely,



Robert R. Rooney
Director, Stem to Stern Safety Review

Cc: Members of the Board